SOLAR OBSERVATIONS.

SOLAR AND SKY RADIATION MEASUREMENTS DURING APRIL, 1922.

By Inving F. Hand, Temporarily in Charge.

For a description of instruments and exposures and an account of the method of obtaining and reducing the measurements, the reader is referred to this Review for April, 1920, 48:225.

From Table 1 it is seen that direct solar radiation intensities averaged above normal for April at Washington, and close to normal at the other two stations. Pyrheliometric observations have been discontinued at the Santa Fe station on account of the removal of the Weather Bureau office to a site poorly adapted for this work.

Table 2 shows that the total solar and sky radiation received on a horizontal surface averaged above the April normal at Washington and slightly below at Medison Wis

Madison, Wis.

Skylight polarization measurements made on three days at Washington give a mean of 56 per cent, with a maximum of 59 per cent on the 24th. These are about average April values. The value of 70 per cent on the 18th is the highest ever observed at Madison in April. The monthly mean of 60 per cent is about normal.

TABLE 1.—Solar radiation intensities during April, 1922.
[Gram-calories per minute per square centimeter of normal surface.]

Washington, D. C.

	Sun's zenith distance.											
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon.	
Date.	75th	Air mass.									Local	
	ian time.	A. M.						Р.	М.		solar time.	
	e.	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e.	
3	mm. 3.63	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm. 3.63	
10	12.68			0, 84			1.04	0.84	0.70		9.83 4.95	
13	7. 29	0.52				ļ					7.29	
		.82	.94			i.5i					2.26	
		. 75	. 84	. 92	1.17	·	(1.16)		(.70)			
	3 10 12 13 20	75th me- rid- ian time. e. mm. 3. 3.63 100. 12.68 12. 5.79 20. 3.48 24. 2.74	me- rid- ian time. e. 5.0 mm. cal. 3. 3.63 10. 12.68 12. 5.79 13. 7.29 0.52 30. 3.48 85 24. 2.74 82	75th me- rid- ian time. e. 5.0 4.0 mm. cal. cal. 3. 63 10. 12.68 12. 5.79 13. 7.29 0.52 0.63 20. 3.48 .85 .91 24. 2.74 .82 .94 2.74 .82 .94	Pate. 75th meridian time. A. M. e. 5.0 4.0 3.0 mm. cal. cal. cal. 3.63 10. 12.68 0.84 12. 5.79 3. 7.29 0.52 0.63 73 30. 3.48 85 91 1.00 2.74 82 94 1.10 2.74 82 94 1.75	8 a.m. 78.7° 75.7° 70.7° 60.0° 75th me-rid-ian time. A. M. e. 5.0 4.0 3.0 2.0 mm. cal. cal. cal. cal. cal. 3.63 1.13 10. 12.68 0.84 1.09 12. 5.79 0.52 0.63 73 13. 7.29 0.52 0.63 73 13. 7.29 0.52 0.63 73 20. 3.48 85 91 1.00 1.18 24 2.74 82 94 1.10 1.27	8 a.m. 78.7° 75.7° 70.7° 60.0° 0.0° 75th meridian time. A. M. e. 5.0 4.0 3.0 2.0 *1.0 mm. cal. cal. cal. cal. cal. cal. 3.63 1.13 10. 12.68 0.84 1.09: 12.579 12. 5.79 0.52 0.63 73 13. 7.29 0.52 0.63 73 24. 2.74 \$2 94 1.10 1.27 1.51	8 a.m. 78.7° 75.7° 70.7° 60.0° 0.0° 60.0° 75th me-rid-ian time.	8 s.m. 78.7° 75.7° 70.7° 60.0° 0.0° 60.0° 70.7° 75th meridian time. A. M. P. e.	8 a.m. 78.7° 75.7° 70.7° 60.0° 0.0° 60.0° 70.7° 75.7° 75th metalian A. M. P. M. 8 a.m. 78.7° 75.7° 70.7° 60.0° 0.0° 60.0° 70.7° 75.7° Air mass. P. M. 8 a.m. 78.7° 75.7° 70.7° 60.0° 0.0° 60.0° 70.7° 75.7° Air mass. P. M. 9 a.m. A. M. P. M. 10 a.m. cal. cal. cal. cal. cal. cal. cal. cal. cal. 10 a.m. cal. cal.	8 a.m. 78.7° 75.7° 70.7° 60.0° 0.0° 60.0° 70.7° 75.7° 78.7° 75th metalian	

^{*} Extrapolated.

TABLE 1.—Solar radiation intensities during April, 1922—Continued.

Madison, Wis.

					_						
Sun's zenith distance.											
75th me- rid- ian time.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon	
	Air mass.										
	A. M.						solar time.				
	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0	e.	
mm.	cai.	cal.	cal. 1. 17	cai. 1. 29	cai.	cal.	cai.	cal.	cal.	mm. 3.48 8.11	
5. 16 3. 45			1, 14	1.33 1.19	1.48					5. 3 5. 3 3. 6	
		(1.05)	1. 10	1.09 1.20		(1. 23)				3.9 4.9	
ļ		±.00	±.00	-0.03		-0.01			·····		
			Linco	In, Ne	br.						
				1. 14		1, 09				7.0	
6. 27 6. 27 3. 15		0.99	1.19	1.28	1. 47	1, 32	1, 16 . 94	. 95		2.4	
6. 27 5. 36	0.68	.80	.99	1.07 1.20 1.14	1. 36	1. 13	94	.78	. 64	8.1	
6.50	(.68)	. 84	1.01	1.20							
	75th me- rid- ian time. 8. 3.30 11.38 5.16 3.45 3.45 3.81 5.16 6.02 4.75 6.27 3.15 5.16 6.27	75th me- rid- iam time. e. 5.0 mm. cal. 3.30 11.38 5.16 3.45 3.45 3.51 5.16 5.16 6.27 6.27 6.27 6.27 6.27 6.27 6.27	75th meridian	Sa.m. 78.7° 75.7° 70.7°	Sa,m. 78.7° 75.7° 70.7° 60.0° 75th merida	Sa,mi	Sa,m. 78.7° 75.7° 70.7° 60.0° 0.0° 60.0° 75th meridal Air mass.	Sa,m. 78.7° 75.7° 70.7° 80.0° 0.0° 60.0° 70.7° 75th meridalian A. M. P. e. 5.0 4.0 3.0 2.0 1.0 2.0 3.0 mm. cal. cal. cal. cal. cal. cal. cal. cal. 11.38 1.05 1.17 1.29 1.23 1.23 5.16 1.18 1.33 1.48 1.33 3.45 1.19 1.19 3.81 98 1.16 1.36 1.36 1.31 5.16 (1.05) 1.10 1.20 (1.23) 1.36	Sa.m. 78.7° 75.7° 70.7° 80.0° 0.0° 60.0° 70.7° 75.7° 75th meridian A. M. P. M. e. 5.0 4.0 3.0 2.0 1.0 2.0 3.0 4.0 mm. cal. 11.38 1.05 1.17 1.29 1.23 1.23 1.35 5.16 3.35 1.14 1.33 1.48 1.19 3.45 3.45 1.19 1.33 1.48 1.19 5.16 (1.05) 1.10 1.20 (1.23) 1.00	Sa.m. 78.7° 75.7° 70.7° 60.0° 0.0° 60.0° 70.7° 75.7° 78.7°	

TABLE 2.—Solar and sky radiation received on a horizontal surface.

Week	Average daily radiation.			Average for	e daily d	eparture ek.	Excess or deficiency since first of year.			
beginning.	Wasb- ington.	Madi- son.	Lin- coln.	Wash- ington.	Madi- son.	Lin- coln.	Wash- ington.	Madi- son.	Lin- coln.	
Apr. 2 9 16 23	cal. 345 415 367 531	eal. 251 296 445 479	cal.	cal. -45 + 8 -58 +87	cal. -126 - 97 + 32 + 45	cal.	cal. 1907 1851 2257 1651	cal. -1522 -2197 -1970 -1652	cal.	

MEASUREMENTS OF THE SOLAR CONSTANT OF RADIA-TION, AT CALAMA, CHILE.

By C. G. Abbot, Assistant Secretary.
[Smithsonian Institution, Washington, D. C.]

NOTE.—Owing to delay in transmission, the data from South America will be included in the next issue of the Review.—Editor.